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Understanding continuance usage of mobile shopping applications in India: the role of espoused cultural values and perceived risk

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ABSTRACT

We drew on the unified theory of acceptance and use of technology (UTAUT2) model, and perceived risk construct to propose an integrated model to explain continuance usage of mobile shopping applications. Espoused national cultural values of individualism/collectivism, masculinity/femininity, power distance, uncertainty avoidance, and long-term/short-term orientation act as moderators to examine the influence of within-culture variation on app usage. Findings reveal habit as the strongest predictor of both continuance intention and use behaviour, but interestingly perceived risk did not influence the post-acceptance behaviour of users significantly. Individualism/collectivism, masculinity/femininity, and long-term/short-term orientation espoused cultural values significantly moderated the relationships in the model. Noteworthy theoretical and managerial implications of the research are discussed further.

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Continuance intention; perceived risk; espoused national cultural value; mobile shopping applications; continuance usage; UTAUT2

1. Introduction

Mobile devices like smartphones and tablets have disrupted the traditional dictum of retailing as they are increasingly used by shoppers to interact with brands, browse, and buy goods and services online. The global mobile retail commerce revenue is estimated to reach 669 billion U.S. dollars in 2018 (Statista 2016). Mobile shopping applications (Apps) have emerged as the most preferred medium for consumers, allowing retailers to augment their shopping experiences by providing personalised offerings and omnichannel integration. Extant research has relied on theories of information technology like technology acceptance model (TAM), unified theory of acceptance and use of technology (UTAUT), and theory of planned behaviour (TPB) to explore consumer's initial adoption and use of mobile shopping (Yang 2012; Yang and Forney 2013; Groß 2015b). Despite its convenience and ubiquitous nature, mobile shopping is hindered by consumer friction with issues related to screen size, network connectivity, and privacy and security concern.

As noted by Bhattacherjee (2001), encouraging initial adoption is a must for information system (IS) success, whereas continued usage is vital for achieving long-term viability and profit. A study in India, Quettra (2015) reports that an Android app on average suffers a loss of 77% of its users within the first three days of installation. The infrequent and ineffective use of a technology after its initial adoption may lead to unwanted costs and consequences for developers and marketers (Hong, Thong, and Tam 2006). Prior researches have noted continued use to be a crucial outcome of the success of m-technology, as it is less expensive to retain current consumers and loyal customers produce higher revenues (Chen 2012; Dai, Hu, and Zhang 2014). However academic researchers and marketers are yet to shift their focus from studying adoption to post-adoption use behaviour of mobile shoppers (Gao, Waechter, and Bai 2015). Based on an extensive literature search, we identified few studies on continuance usage in mobile shopping (Gao, Waechter, and Bai 2015; Groß 2016; Shang and Wu 2017). Moreover, past studies mentioned have mainly focussed on the continuous use of mobile shopping on websites, whereas the post-adoption usage of mobile shopping applications, in particular, has been rarely examined. Hence, based on the theoretical and practical implications, and the dearth of studies on mobile shopping continuance, further investigation on this topic is highly justified.

Recent studies have employed and validated the UTAUT2 framework, to predict consumers behavioural intention and use of mobile shopping apps in both national and cross-national context (Tak and Panwar 2017 ; Chopdar et al. 2018). Thus, UTAUT2 variables have been found to be significant drivers of consumers initial use of mobile shopping apps. However, to the

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best of our knowledge, no scholarly research has employed the UTAUT2 framework to explore the antecedents of continuance usage of mobile shopping apps till date. We argue that UTAUT2 variables may also act as significant predictors of consumers continuance intention towards mobile shopping apps and their regular use. Additionally, it makes for an interesting comparison of our findings with prior studies on mobile shopping adoption based on UTAUT2. Hence, our study conceptually develops and empirically validates a model based on the UTAUT2 proposed by Venkatesh, Thong, and Xu (2012), to shed light on continuance usage of mobile shopping apps in the Indian context. As a consequence, the current work aids in extending the scope of the UTAUT2 framework and may act as a reference point for future researchers.

Groß (2015a) noted that most of the empirical research focuses on drivers, thereby overlooking the impact of various barriers or inhibitors on mobile shopping. Findings from past studies have highlighted various risk facets as significant hurdles for acceptance and usage of m-payments and m-shopping (Yang et al. 2015; Groß 2016; Madan and Yadav 2018). Despite of recent empirical evidences, there is a lack of understanding on the effects of consumers perceived risk on the regular use of mobile shopping applications. Our study makes an significant contribution to the literature on the post-adoption use of mobile shopping apps, by examining the influence of users' risk perceptions on their continued use of shopping apps. The authors expect that the adverse effects of perceived risk on continuous use of mobile shopping apps may diminish, as consumers become more familiar with the app environment over time. This engenders new knowledge, as prior works have primarily focussed on the impact of perceived risks on users' initial acceptance and use of mobile shopping. Moreover, UTAUT2 exclusively deals with various drivers of consumers' technology acceptance and use. Thus, incorporating perceived risk in the study context will help in increasing the applicability and predictive power of the model. Based on the research gaps identified and ensuing discussions, the extension of UTAUT2 with perceived risk construct is appropriate and useful.

Yap et al. (2010) propose that culture can influence the mobile buyer behaviour. Various researchers have advocated future research on the influence of individual's culture on the post-adoption behaviour of mobile shoppers (Gan and Li 2015; San-Martín et al. 2016). Lee et al. (2007) argued that within-country variations in cultural dimensions are often greater than variations across countries and have a significant impact on technology adoption and use. Extant literature is replete with studies which have empirically validated the above assumption. Adopting it, Yoon (2009) explored the moderating influences of Hofstede's cultural dimensions on the acceptance of e-commerce among Chinese consumers. In another study, variations in Hofstede's cultural variables significantly influenced the use behaviour of mobile banking consumers in Mozambique (Baptista and Oliveira 2015). As India is a large and culturally diverse country, the authors expect that cultural variability among mobile shoppers in India, may significantly influence their continuous usage of mobile shopping apps. Therefore, to examine the influence of espoused national culture on users' post-adoption behaviour of mobile shopping apps in India, Hofstede's cultural variables are incorporated in our conceptual framework as moderators of key relationships.

Motivated by the crucial issues identified, we seek to address the following research questions in our study. They are: RQ1. What are the key determinants of continuance intention and usage of mobile shopping apps, and how do they influence the post-adoption behaviour of mobile shoppers? RQ2. Can the UTAUT2 model be applied to predict consumers' continuance intention and use of mobile shopping apps? RQ3. Does perceived risk act as a significant barrier towards consumers' continuance intention and use of mobile shopping apps? and RQ4. Does espoused national culture influence user's continuance usage behaviour of mobile shopping apps?

The contribution of this study to mobile commerce literature is manifold. Firstly, this study is among the earliest to shed light on the factors that influence the continuance intention as well as continuance usage of consumers with regard to mobile shopping applications. Secondly, it augments new knowledge to mobile shopping literature, by confirming UTAUT2 variables as significant predictors of consumers continued use of mobile shopping apps. Further, it contributes immensely to extant literature through the integration of perceived risk in the model, thereby resulting in novel findings regarding consequences of consumers risk perceptions on regular usage of mobile shopping apps. Another significant contribution of our study lies in exploring the impact of espoused national culture on post-acceptance behaviour in mobile shopping apps context. As far as we know, this is the first time UTAUT2 model and Hofstede's cultural moderators are juxtaposed in a scholarly work pertaining to the post-acceptance use of mobile shopping apps. Thus, it results in a finer understanding of the manifestations and impact of culture on individuals regarding their continuous use of mobile shopping applications. Overall, the study findings provide strategic inputs to online retailers and app developers on ways to enhance customer retention through app localisation.

The rest of the paper is organised as follows: in the next section, we present a comprehensive review of relevant bodies of literature. It is followed by the development of hypotheses and the research model in Section 3. Section 4 outlines the research methodology adopted for the study. The data analysis and results are reported in Section 5, followed by discussions, theoretical and managerial implications and limitations in Sections 6, 7 and 8. Finally, Section 9 concludes the paper.

2. Literature review and theoretical background

2.1. A summary of past research on adoption and continued use of mobile shopping

The significant growth of mobile shopping in recent times has facilitated academic research on the adoption and subsequent use of various mobile platforms by consumers for shopping. Perceived usefulness was found to significantly influence the intention to use smartphones for mobile shopping (Agrebi and Jallais 2015). In another study, Gupta and Arora (2017) employed the behavioural reasoning theory and observed that price saving orientation and self-efficacy are the major determinants for and against mobile shopping adoption among Indian consumers. Groß (2015b) applied and extended the TAM to confirm that perceived enjoyment and trust in m-vendor has a significant impact on the intention to engage in m-shopping. Wong et al. (2015) extended the TAM and analysed the effect of three additional variables viz. compatibility, perceived enjoyment, and perceived cost on mobile shopping adoption. Authors have noted that most studies have used TAM to identify factors influencing consumer adoption of mobile shopping. In contrast, few notable works exist on the continuance use of mobile shopping. Based on the information success model, flow theory, and trust, Gao, Waechter, and Bai (2015) analysed the various drivers of consumer's repeat purchase intention on mobile sites. Groß (2016) identified various impediments to mobile shopping acceptance and noted that the overall risk perception of consumers acts as a hindrance to the regular use of m-shopping. Customer engagement along with satisfaction and convenience played a significant role in predicting customer loyalty in mobile shopping (Thakur 2016). Value for money was found to be the foremost predictor of satisfaction and continuance intention for online food m-shoppers (Shang and Wu 2017). A thorough probe of extant literature on m-shopping reveals that, scholars have been mostly preoccupied with exploring consumers initial acceptance and use of mobile platform for shopping. Hence, it would be beneficial for researchers and practitioners to move beyond TAM and search for an alternate theoretical framework to shed light on the regular usage of mobile shopping apps.

2.2. UTAUT2 model

The UTAUT was initially developed by Venkatesh et al. (2003), with performance expectancy, effort expectancy, social influence and facilitating conditions posited as core determinants of behavioural intention and use behaviour in the model. Venkatesh, Thong, and Xu (2012) extended the model and proposed UTAUT2 by adding three new constructs of hedonic motivation, price value, and habit. These additions make UTAUT2, more comprehensive and suitable for predicting use of consumer-oriented technologies. Further age, gender, and experience act as moderating variables in the model. Tandon, Kiran, and Sah (2016) adopted the UTAUT2 model along with perceived risk construct to examine online shopping adoption in India. Baptista and Oliveira (2015) successfully adopted the UTAUT2 model to predict mobile banking acceptance in Mozambique. In an empirical study in Malaysia, Hew et al. (2015) drew on the UTAUT2 model to investigate the determinants of consumer's adoption of mobile apps. Lai and Shi (2015) extended the UTAUT2 model with privacy concerns to explain user's continuance intention towards mobile instant messaging and social networking apps in China. A brief overview of the literature on m-commerce/m-shopping acceptance and use employing the UTAUT2 model is provided in Appendix 3. It can be inferred that among all, only Chopdar et al. (2018) and Tak and Panwar (2017) have employed UTAUT2, for describing user behaviour with mobile shopping apps. Moreover, there is a paucity of research exploring the post-adoption use behaviour of mobile shoppers.

2.3. Perceived risk

Cunningham (1967) conceptualised perceived risk as composed of two elements; firstly, the amount at stake which would be lost if the consequences of an action were not favourable and secondly, the individual's subjective feeling of certainty that the consequences will be unfavourable. Stone and Winter (1987) opine risk as an expectation of loss. Despite the fact that the core conceptions of perceived risk in literature have remained firm over the years, its various facets have changed with the advent of online shopping and m-shopping (Forsythe et al. 2006; Groß 2016).

A further review of m-commerce literature reveals that risk perceptions of consumers negatively influence their intention to shop over mobile and acts as a

hindrance towards the regular use of mobile shopping. Privacy and security concerns were treated as a single construct and found to negatively influence the trust and satisfaction of m-shoppers (Gao, Waechter, and Bai 2015). In a study in India in m-payment context, Thakur and Srivastava (2014) conceptualised perceived risk as a multi-dimensional construct comprising of security risk, privacy risk, and monetary risk. Groß (2016) measured the overall risk perception of m-shoppers as a combination of internal risk (privacy, security and financial), and external risk (transaction processing). De Kerviler, Demoulin, and Zidda (2016) explored the role of perceived risk such as financial and privacy risk related to the potential monetary and psychological losses of consumers engaged in m-payment. Chopdar et al. (2018) illustrated the significant impact of perceived risk on user adoption of mobile shopping applications in India. But, no empirical studies have yet examined its role in shaping consumers continuance intention and usage with regard to mobile shopping apps. Based on a thorough appraisal of the prior literature on perceived risk and mobile shopping, we have conceptualised perceived risk construct as comprised of privacy, security, and financial risk. Users' previous experience with a specific shopping channel was found to dampen their risk perception, leading to a higher purchase intention (Stanforth, Lennon, and Moore 2000; Park and Stoel 2005). Hence, it will be interesting to find out whether perceived risk continues to act as a significant barrier for experienced users regarding their post-adoption use of mobile shopping apps.

2.4. Espoused national cultural values

Hofstede (1980) defines culture as the 'collective programming of the mind which distinguishes the members of one human group from another'. Initially, four dimensions of national culture namely: individualism/collectivism, power distance, uncertainty avoidance, and masculinity/femininity were proposed (Hofstede 1980). Later long-term orientation and indulgence dimension were added by Hofstede and Bond (1988) and Hofstede, Hofstede, and Minkov (2010) respectively to the original model. Hofstede's framework has been employed and validated in numerous empirical studies across varied contexts and disciplines.

Scholars have conventionally treated culture at the country or national level assuming that members of a society are more homogeneous with low within-country variation in cultural values as compared to high between-country variation (Hofstede 1980; Kirkman, Lowe, and Gibson 2006). Researcher's with contemporary outlook view culture as an individual value with perceptible differences even in within-country context (Srite and Karahanna 2006; Rai, Maruping, and Venkatesh 2009; Yoon 2009). As national culture is a macro-level phenomenon, it is often inappropriate in explaining technology acceptance and use behaviour at the individual level (Straub et al. 2002). McCoy, Galletta, and King (2005) also expressed similar views suggesting to the model culture at the individual level to understand users' voluntary IT usage behaviour. As our study focuses on consumers' continuance usage of mobile shopping apps on their smartphones, we utilise the concept of espoused national cultural values, that are defined as the degree to which an individual embraces the values of his or her national culture (Srite and Karahanna 2006). Such a perspective of treating culture as an individual difference variable will help us to circumvent the potential issues of ecological fallacy mentioned by Robinson (1950). A brief description of each of the espoused cultural values studied in this research is provided in Table 1, as

Table 1. Description of espoused national cultural values.

Espoused cultural value	Description
Individualism vs. collectivism	Espoused individualism/collectivism refers to an individual's preference for a social framework where individuals take care of themselves (espoused individualism) as opposed to where individuals expect the group to take care of them in exchange for their loyalty (espoused collectivism)
Masculinity vs. femininity	Espoused masculinity/femininity refers to the degree to which gender inequalities are espoused by an individual. While individuals espousing masculine values emphasise work goals such as earnings, advancement, competitiveness, performance and assertiveness, individuals espousing feminine values emphasise personal goals such as a friendly atmosphere, comfortable work environment, quality of life, and warm personal relationships
Power distance	Espoused power distance refers to the degree to which large differentials of power and inequality are accepted as normal by the individual. It will condition the extent to which the employee accepts that his/her superiors have more power
Uncertainty avoidance	Espoused uncertainty avoidance refers to the extent to which individuals feel vulnerable to unpredictable and unknown situations. It is the level of risk accepted by the individual, which can be gleaned by his/her emphasis on rule obedience, ritual behaviour, and labour mobility
Long-term vs. short-term orientation	Individuals who espouse long-term orientation values emphasise thrift, perseverance for building relationship, ordering relationships by status and observing this order, and preference towards future rewards. On the other hand, individuals who espouse short-term orientation values underline fostering virtues of personal steadiness and stability, protecting face, respect for tradition, and fulfilling social obligations

Source: Krishnan (2017); Hoehle, Zhang, and Venkatesh (2015); Srite and Karahanna (2006).

prescribed in the literature (Srite and Karahanna 2006; Hoehle, Zhang, and Venkatesh 2015; Krishnan 2017).

3. Research model and hypotheses

The research model along with the hypotheses is presented in Figure 1. All the key determinants of the UTAUT2 model, along with perceived risk construct are proposed as predictors of consumers' continuance intention and usage in the model. Espoused national cultural values play the role of moderators in this study.

3.1. UTAUT2 determinants in the context of continuance intention and usage of mobile shopping apps

Performance expectancy is 'the degree to which a user perceives that using mobile shopping apps will provide benefits in performing shopping activities' (Venkatesh et al. 2003). Performance expectancy has been observed to be a prime driver of mobile commerce acceptance (Lai and Lai 2014; Baptista and Oliveira 2015). In another study, Lai and Shi (2015) observed that performance expectancy is a significant driver of users' intention to continue with mobile instant messaging and social networking apps. Drawing on the UTAUT model, Zhou (2011b) verified the significant positive influence of performance expectancy on users' continuance usage of mobile internet. When users perceive higher utility from using mobile shopping apps, they may notice a greater intention to continue their usage. We argue that performance expectancy will positively influence the continuance intention of users of mobile shopping apps. Hence, we posit the following hypothesis:

> H1: Performance expectancy (PE) positively affects the continuance intention (CI) towards mobile shopping apps.

Effort expectancy is 'the degree of ease associated with the use of mobile shopping apps' (Venkatesh et al. 2003). Perceived ease of use was found to positively affect users continued intention towards mobile apps (Fang and Fang 2016). In a longitudinal study among citizens in Hong Kong, post-usage effort expectancy was noted to be an important driver of users' continuance intention with e-government technologies (Venkatesh et al. 2011). Kang (2014) further validated the significant positive effect of effort expectancy on users' continuance intention to use mobile apps. When the user perceives the degree of ease associated with using shopping apps as favourable, it may result in higher intention towards continuous use. Easy to use interfaces and convenient designs are less taxing on users and may act as a significant determinant of their intention to continue use of shopping apps. Therefore, based on the empirical evidences from the past literature we posit the next hypothesis:

> H2: Effort expectancy (EE) positively affects the continuance intention (CI) towards mobile shopping apps.

Social influence is 'the degree to which users perceives that others (e.g. family and friends) believe they should use mobile shopping apps' (Venkatesh et al. 2003). Past literature provides rich evidence of the positive impact of social influence on users' continuance intention and use in varied m-commerce context. Ku, Chen, and Zhang (2013) employed the uses and gratifications theory and observed that continuance intention of social networking site (SNS) users is significantly driven by their subjective norm. Likewise, Zhou and Li (2014) indicated the significant effect of social influence on continuance usage of mobile SNS. In an empirical research in China, Lai and Shi (2015) reported social influence as an important determinant of users' intention to continue with mobile messaging and social networking apps. Similarly, consumers post-usage social beliefs had a significant impact on their continuance intention towards mobile payment (Lu et al. 2017a). We argue that users of shopping apps continue to look for approval from friends, family, colleagues and others while engaged in its regular use. Moreover, users may internalise the opinions of others through physical as well as social media interactions, that may guide their decision to continue or discontinue use of shopping apps. Hence, we posit the next hypothesis:

> H3: Social influence (SI) positively affects the continuance intention (CI) towards mobile shopping apps.

Facilitating conditions pertains to 'the user's perception of the various resources and support available to perform the desired behaviour' (Venkatesh et al. 2003). The impact of facilitating conditions on regular use of mobile internet was found to be statistically significant and positive (Zhou 2011b). Findings of Venkatesh et al. (2011) approved the significant association between post-usage facilitating conditions and users' continuance intention of IS. In another study, facilitating conditions served as the significant driver of both continuance intention and usage of app stores (Rezaei et al. 2016). We argue that a consumer having a favourable set of facilitating conditions, like high-speed connectivity, compatible technologies and support will have a greater intention to continuously engage with mobile shopping apps. Moreover, it will boost the regular use of shopping apps. Therefore, we hypothesise:

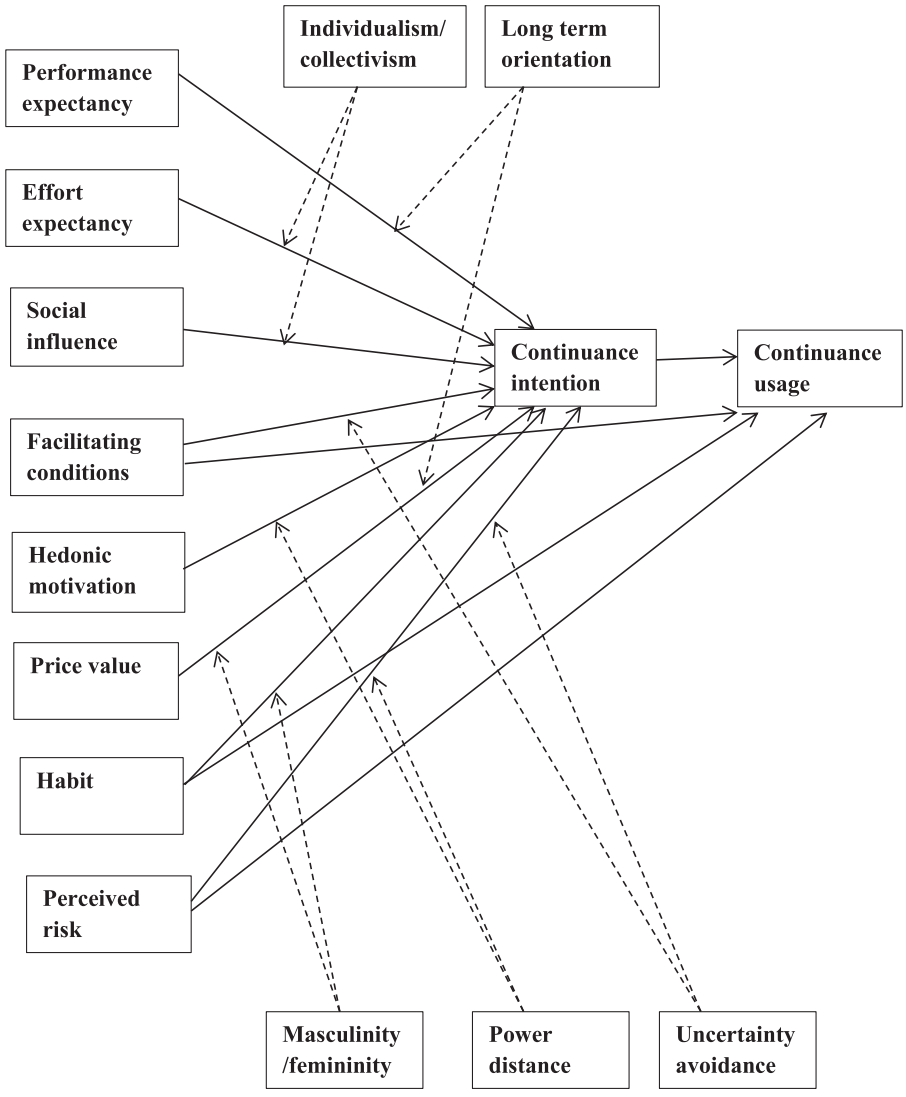

Figure 1. Research model.
Notes: ⟶ Direct effect; - - > Moderating effect.

H4a: Facilitating conditions (FC) positively affects the continuance intention (CI) towards mobile shopping apps.

H4b: Facilitating conditions (FC) positively affects the continuance usage (CU) of mobile shopping apps.

Hedonic motivation is about 'the fun or pleasure derived from using mobile shopping apps'. It is posited as a major driver of continuous intention towards using a technology (Venkatesh, Thong, and Xu 2012). Perceived enjoyment is reported to be positively associated with continuance use of mobile sites (Zhou 2013). Further, hedonic motivation was reported to play an important part in explaining users' intention to regularly engage with online games (Chang, Liu, and Chen 2014) and mobile instant messaging and social network (Lai and Shi 2015). Hedonic gratification was reported to be a crucial driver of continuance intention of WeChat users in China (Gan and Li 2018). Various app features that help in searching, social sharing and earning rewards adds to the entertainment value of the shopping app, which may help in sustaining engagement and interests among users. When users perceive the experience of using mobile shopping apps as enjoyable, they may intend to continue its use in the future. Hence, we propose the next hypothesis:

H5: Hedonic motivation (HM) positively affects the continuance intention (CI) towards mobile shopping apps.

Price value is 'the consumer's cognitive trade-off between the perceived benefits and monetary costs of using mobile shopping apps' (Venkatesh, Thong, and Xu 2012). The outcome of the research by Lai and Shi (2015) implied that price value positively affects the continuance intention towards mobile instant messaging

and social networking apps. On the contrary, perceived cost was observed to be a significant barrier towards continuance intention of m-commerce (Chong 2013). Customer perception of value was noted to have a considerable impact on the sustained use of m-banking consumers in Korea (Kang, Lee, and Lee 2012). We argue that when the perceived benefits of using mobile shopping apps are greater than the monetary costs, it may result in higher intention to continue to use them. As most of the shopping apps are available for free and data cost have reduced considerably in recent times, users may be more willing to continue their usage. Therefore, we posit the following hypothesis:

H6: Price value (PV) positively affects the continuance intention (CI) towards mobile shopping apps.

Habit is described as 'the extent to which people tend to perform behaviours automatically because of learning' (Limayem, Hirt, and Cheung 2007). Polites and Karahanna (2013) demonstrated that consumers' habit encourages the formation of inertia to change. Consumer's mobile payment usage habit was observed to be positively correlated with users continued intention towards mobile payments (Jia, Hall, and Sun 2014). The strong association between habit and continuance intention is further vindicated by the empirical evidence furnished pertaining to mobile social apps use (Hsiao, Chang, and Tang 2016). Limayem and Cheung (2008), confirmed habit as a major predictor of regular use of technology and concluded that an increase in habit leads to more automatic and sustained use behaviour. Thus, as a result of their past experiences and use of mobile shopping apps, consumers may subconsciously engage in their repeated use. Hence, consistent with the previous findings of the literature discussed above, we propose the following hypotheses:

H7a: Habit (HA) positively affects the continuance intention (CI) towards mobile shopping apps.

H7b: Habit (HA) positively affects the continuance usage (CU) of mobile shopping apps.

3.2. Perceived risk

Consumers risk perceptions are ingrained in online transactions due to the spatial and temporal disconnection from retailers, which hinders the adoption of new technologies. In the context of B2C e-commerce, consumer perceived risk was found to be a significant deterrent of their repeat purchase intentions (Chiu et al. 2014). Yang, Chen, and Wei (2015) noted the adverse effect of users' risk perception on their mobile shopping extension behaviour. In a recent study, users overall risk perception served as a barrier to continued usage of mobile shopping (Groß 2016). The likelihood of data leakages, sharing and selling of personal user information without consent, present serious privacy risks for app users. Further, insecure mobile networks and apps make users vulnerable to cybercrimes and financial losses. Hence, we expect that the combined influence of privacy, security, and financial risk associated with use of mobile shopping apps will diminish users' continuance intention and their repeated use. Therefore, we posit the following hypothesis:

H8a: Perceived risk (PR) negatively affects the continuance intention (CI) towards mobile shopping apps.

H8b: Perceived risk (PR) negatively affects the continuance usage (CU) of mobile shopping apps.

3.3. The interconnection between continuance intention and continuance usage

IS continuance refers to 'the post-adoption behavioural patterns that reflect the continued use of a particular IS' (Limayem, Hirt, and Cheung 2007). A theoretical framework like IS continuance model by Bhattacherjee (2001) posits continuance intention as the focal construct of interest. Later, Bhattacherjee, Perols, and Sanford (2008) extended the model by linking continuance intention to continuance usage and empirically validated the association. Previous studies have explored users' continuance intention in a mobile context (Thong, Hong, and Tam 2006; Chen and Li 2016) but have not yet examined it as a predictor of continuance use behaviour with reference to mobile shopping. Hence, with the purpose of extending the above links in mobile shopping apps context, we posit the next hypothesis:

H9: Users continuance intention (CI) positively affects the continuance usage (CU) of mobile shopping apps.

3.4. Espoused national cultural values as moderators

Espoused individualism/collectivism (IC) is 'the extent to which a person focuses on his/her own needs as opposed to the group needs and wish to act as an individual than as a group member' (Srite and Karahanna 2006). Individualistic cultures tend to encourage people to focus on efficiency, speed and performance (Hofstede 2001). Straub, Keil, and Brenner (1997) showed a stronger effect of perceived ease of use on technology adoption in an individualistic setting in the U.S.A. compared to Japan which is more collectivist in nature. Similar result was found, when Im, Hong, and Kang (2011) tested the

UTAUT model and noted the stronger influence of effort expectancy on technology adoption intention of users in the U.S.A. compared to Korea. Individualism positively moderated the association between perceived ease of use and users intention towards m-commerce (Hung and Chou 2014). In a meta-analytic review, Zhang, Weng, and Zhu (2018) further substantiated that, individualism positively moderates the relationship between effort expectancy and e-banking acceptance. Building on the above findings, we state that the favourable effect of effort expectancy on continuance intention towards mobile shopping apps will be stronger for users high on individualism. Further, Srite and Karahanna (2006) noted that people who are high on espoused individualism are less affected by the opinion of others. But, on the other hand, those with high espoused collectivist cultural values tend to follow the opinions of their reference groups. An empirical study by Liu, Min, and Ji (2011) confirmed that the impact of subjective norm on users' intention towards mobile instant messaging is more powerful for users high on collectivism. Significant moderating impact of culture was observed with results supporting a stronger influence of subjective norm on the behavioural intention for IT use in case of collectivist Korean users vis-à-vis individualistic U.S. users (Dinev et al. 2009). The above discussion guides our argument that the positive impact of social influence on the user's intention to continue with mobile shopping apps will be more vigorous for users with espoused collectivist cultural value. Thus, this study proposes:

H10a: The positive effect of effort expectancy (EE) on continuance intention (CI) towards mobile shopping apps will be stronger for individuals scoring high on espoused individualism.

H10b: The positive effect of social influence (SI) on continuance intention (CI) towards mobile shopping apps will be stronger for individuals scoring high on espoused collectivism.

Espoused masculinity/femininity refers to whether an individual emphasises on ego-enhancing goals (masculine) or social goals (feminine) (Srite and Karahanna 2006). Price consciousness is related to masculine culture as noted by Hofstede (2001). In a study by Turel et al. (2006), perceived value was reported to have a stronger impact on customer satisfaction of mobile IT services in Singapore and Canada (High masculinity) compared to Finland (Low masculinity). Masculinity-oriented cultures emphasise more on utilitarian values like price and time savings (San Martín and Jiménez 2011). In another study, Venkatesh et al. (2004) found that individuals high on masculinity displayed similar behavioural pattern as men in technology decision. Zhang and Maruping (2008) posited that, the correlation between the utilitarian value of technology and adoption intention will be stronger for high masculinity-oriented people, in contrast to those with higher degree of femininity. Thus, we argue that mobile shoppers endorsing masculine orientation are likely to focus on the utilitarian value they derive out of using shopping apps. Hence, the favourable impact of price value on the user's intention to continue with mobile shopping apps will be more vigorous for users with masculinity cultural value. Furthermore, when the degree of masculinity is higher, individuals tend to be more assertive in their decision-making and stick to brands they like. Lam (2007) vindicated this assumption, as masculinity was found to have a positive relationship with proneness towards brand loyalty. In a study on acceptance of self-service technologies, Blut, Wang, and Schoefer (2016) confirmed the stronger influence of customers past experiences on technology acceptance in masculine cultures compared to feminine cultures. Seeking to extend these findings to our study context, we state that habit will exhibit a stronger influence on user's intention to continue with mobile shopping apps for those with masculine cultural value. Hence, we posit the following:

H11a: The positive effect of price value (PV) on continuance intention (CI) towards mobile shopping apps will be stronger for individuals scoring high on espoused masculinity.

H11b: The positive effect of habit (HA) on continuance intention (CI) towards mobile shopping apps will be stronger for individuals scoring high on espoused masculinity.

Espoused power distance is 'the extent to which status inequality is accepted to be normal by individuals' (Srite and Karahanna 2006). It results in individuals being more relaxed and fun-loving vis-à-vis those with low power distance. In a cross-cultural study, perceived enjoyment had a stronger association with behavioural intent to accept mobile augmented reality in high power distance society like South Korea vis-à-vis Ireland's low power distance culture (Lee, Chung, and Jung 2015). It indicates that hedonic services are preferred more in societies exhibiting higher power distance. Kim et al. (2004) provide further empirical support for the same. Moreover, hedonic m-commerce services were preferred more in high power distance culture in Hong Kong as compared to that of the U.K. with low power distance (Harris, Rettie, and Cheung 2005). Hence, we expect that the association between hedonic motivation and continuance intention to use mobile shopping applications will be stronger for high power

distance users in contrast to users low on espoused power distance. Further, a society high on power distance also exhibits greater perception of risk (Leng and Botelho 2010). High power distance environment fosters distrust among individuals (Ji et al. 2015) and leads to a greater demand for privacy protection (Lu et al. 2017a). Consistent with above finding, Tong (2010) observed higher perception of risk about online shopping in high power distance culture like China compared to low power distance society like the U.S.A., that consequently acts as a barrier to online shopping adoption. We expect that individuals with high espoused power distance may perceive greater risk in using mobile shopping apps that will act as a deterrent to its continuous usage. Thus, we propose:

H12a: The positive effect of hedonic motivation (HM) on continuance intention (CI) towards mobile shopping apps will be stronger for individuals scoring high on espoused power distance.

H12b: The negative effect of perceived risk (PR) on continuance intention (CI) towards mobile shopping apps will be stronger for individuals scoring high on espoused power distance.

Espoused uncertainty avoidance (UA) refers to the degree of risk accepted by individuals and avoidance of unknown (Srite and Karahanna 2006). In high uncertainty avoidance culture, people are reluctant to take risks and do so after careful preparation (Singh 2006). Higher degree of facilitating conditions may lessen the uncertainty or risk associated with technology adoption. In a study in cross-cultural context, the effect of facilitating conditions on individual's intention to accept YouTube was reported to be more robust in high uncertainty avoidance society like Japan compared to low uncertainty avoidance in the U.S.A. (Jung and Lee 2015). Similarly facilitating conditions impact on use behaviour of new technologies was found to be stronger in the Korean context of high uncertainty avoidance culture in comparison with the U.S.A. with low uncertainty avoidance score (Im, Hong, and Kang 2011). Thus, we expect that facilitating conditions will exert a stronger influence on the intention to continue with mobile shopping apps for users who exhibit a high level of uncertainty avoidance. Moreover, findings from prior studies indicate that high uncertainty avoidance leads to high perceived risk which acts as a barrier for internet shopping (Al Kailani and Kumar 2011). Whereas, individuals in low uncertainty avoidance culture are less risk averse and fairly relaxed (Hofstede, Hofstede, and Minkov 2010). The negative effect of perceived risk on attitude towards website was found to be stronger for consumers with high levels of uncertainty avoidance (Alcántara-Pilar et al. 2018). Hence, we argue that for users with high level of uncertainty avoidance, perceived risk will exert a more powerful negative influence on the intention to continue with mobile shopping apps compared to those with lower uncertainty avoidance. Hence, we propose the following:

H13a: The positive effect of facilitating conditions (FC) on continuance intention (CI) towards mobile shopping apps will be stronger for individuals scoring high on espoused uncertainty avoidance.

H13b: The negative effect of perceived risk (PR) on continuance intention (CI) towards mobile shopping apps will be stronger for individuals scoring high on espoused uncertainty avoidance.

Espoused long-term/short-term orientation (LT) is an individual's consideration of the future (Hofstede, Hofstede, and Minkov 2010). Findings from Hung and Chou (2014) revealed the significant positive moderating influence of long-term orientation between perceived usefulness and behavioural intention to use m-commerce. In a recent study long-term orientation significantly moderated the relationships between mobile social media application usability and users continued intention (Hoehle, Zhang, and Venkatesh 2015). We expect that users with higher degree of long-term orientation are likely to use mobile shopping apps regularly, when they perceive it to be beneficial providing a convenient and faster mode of shopping. Members in societies high on long-term orientation tend to plan for the future and prefer cost savings (Hofstede and Bond 1988). Long-term/short-term orientation is highly pertinent in mobile shopping apps context as mobile shoppers are likely to assess shopping apps in terms of perceived value and time saving they can deliver. Lu et al. (2017b) substantiated this by noting the significant direct impact of individual's long-term orientation on their continuance intention towards mobile shopping in China. In a recent empirical work, Yang and Lin (2016) observed a significant moderating influence of espoused long-term orientation culture on the interconnection between hedonic value and stickiness with Facebook. Based on the above assumptions, we propose that price value regarding mobile shopping applications will exert a significantly stronger influence on users' intention to continue shopping on apps for those mobile shoppers with high espoused long-term orientation culture. We hypothesise:

H14a: The positive effect of performance expectancy (PE) on continuance intention (CI) towards mobile shopping apps will be stronger for individuals scoring high on espoused long-term orientation.

H14b: The positive effect of price value (PV) on continuance intention (CI) towards mobile shopping apps

will be stronger for individuals scoring high on espoused long-term orientation.

To reduce the confounding effect on the empirical findings, we included gender, age, and experience as control variables in our study.

4. Method

4.1. Participants

The priority of our study is to investigate the continuance intention and usage of mobile shopping applications from respondents having prior experience of purchasing and using them. We collected a database of e-mails of verified e-commerce users in India. We segregated them based on demographic details like age, gender, and education to make it representative of the Indian mobile commerce market. Moreover, the respondents belong to different states of India having diverse religious, ethnic and cultural backgrounds which perfectly suits to fulfil the objectives of our study.

4.2. The survey instrument

To achieve the objectives of our study, constructs employed in our model were carefully chosen and measured with items validated from preceding research studies. The questionnaire consists of 59 items to measure 15 constructs in our study. The construct measurement items adapted for the study along with their sources are presented in Appendix 1. Seven-point Likert scale with values ranging from 1 – Strongly disagree to 7 – Strongly agree was used to measure all the items, except for continuance usage construct. We measured the continuance usage construct using two items from Bhattacherjee, Perols, and Sanford (2008) and one item adapted from Limayem, Hirt, and Cheung (2007). It asked the respondents to specify the number of mobile shopping apps they use, the number of times they use apps in a month, and the number of hours of use in a month. As the respondents are required to enter specific usage data rather than their subjective perception of usage, such measurement scales are less prone to respondent bias. We did not opt for a pilot study as all the items were adapted from previous empirical works and validated in varied context. Nonetheless, expert reviews were solicited prior to the survey.

4.3. Data collection

The survey questionnaires were sent via e-mail and administered through survey monkey, which is one of the leading cloud-based survey platforms in the world. We adopted a two-stage approach for data collection seeking to reduce common method bias (CMB) through temporal separation of the survey (Podsakoff et al. 2003). Such an approach is also fitting, as we measure both the continuance intention as well as continuance usage of mobile shopping apps in our study, as illustrated in past empirical works (Hsu et al. 2006; Bhattacherjee, Perols, and Sanford 2008). We conducted stage-I of the survey in April 2017 by sending 30,000 e-mails. It was aimed at measuring all the predictor variables along with espoused cultural variables and continuance intention of respondents. Data were collected for a period of 10 days. No reminders were sent during the survey. We received 612 responses with a response rate of 2.04%. Thirty-nine responses were not taken into consideration as they were non-users of mobile shopping apps. Further 230 responses were removed on account of incomplete response and non-engagement. Hence 343 valid responses were gathered. Thank you notes were sent to all respondents with valid responses and were told to give information about their continuous use of mobile shopping apps after one month.

In stage-II of the survey, we sent the questionnaire to 343 respondents, to measure their continuance usage of mobile shopping apps since responding to the first survey. We received 302 responses on the 2nd survey. Responses to both surveys were matched based on e-mail of respondents. No incentives were given to the participants of the survey. The descriptive statistics related to respondents' characteristics is presented in Table 2. The participants represent a group with varied demographic and cultural characteristics. As per Nielsen (2015) report, 52% of women smartphone owners in

Table 2. Descriptive statistics of sample.

Measure	Value	Frequency	Percentage
Gender	Male	152	50.3
	Female	150	49.7
Age	<20 years	25	8.3
	20–24 years	42	13.9
	25–29 years	24	7.9
	30–34 years	100	33.1
	35 years and above	111	36.8
Study	Engineering	77	25.5
	Management	108	35.7
	Science	62	20.5
	Others	55	18.3
Educational qualification	Diploma	34	11.3
	Graduate	114	37.8
	Postgraduate	140	46.3
	Others	14	4.6
Smart phone ownership	Yes	302	100
	No	–	–
Shopping apps use	Yes	302	100
	No	–	–
Experience of using shopping apps	<1 year	40	13.2
	1–2 years	91	30.1
	>2 years	171	56.7

India use shopping apps compared to 55% of men. Another study observed that the most active segment of mobile shoppers belongs to the 25–34 years age category, followed by shoppers in 15–24 and 35–44 age bracket (qz 2016). It can be noted that the respondents closely represent the Indian digital shopper's profile. Moreover, nearly 87% of respondents have more than one year of experience of using mobile shopping apps that make the sample appropriate for our study.

5. Data analysis and results

We adopted the partial least square structural equation modelling (PLS-SEM) approach to empirically test and validate our research model. We used Smart-PLS 3 software for performing the analysis. PLS-SEM is preferred, as it has less restrictive assumptions about the data and focusses on predicting the key target constructs (Hair et al. 2012). Moreover, it avoids the factor indeterminacy problem associated with CB-SEM and produces more precise parameter estimates, thus resulting in higher statistical power (Hair, Ringle, and Sarstedt 2011). Moreover, it is more appropriate in analysing the moderation effect in our study (Yoon 2009). We followed the two-step method of Anderson and Gerbing (1988) for analysing the outer measurement model prior to structural model evaluation.

5.1. Measurement model assessment

We checked the reliability of constructs using Cronbach's alpha that seems to be adequate, with all the values in the range of 0.94–0.76, thus exceeding 0.70 as suggested by Nunally and Bernstein (1978). Next, we established convergent validity by verifying the composite reliability and average variance extracted (AVE) of all measures. The recommended value for composite reliability is greater than 0.70 (Chin, Marcolin, and Newsted 2003), whereas AVE values should be more than 0.50 (Fornell and Larcker 1981). As shown in Table 3 all the observed values exceed the recommended threshold limit thereby achieving convergent validity. Table 4 reports the square root of AVE of each construct and is greater than its correlations with rest of the constructs indicating discriminant validity (Fornell and Larcker 1981). The cross loadings presented in Appendix 2 further corroborates it. Overall, the psychometric properties of all the constructs in this study were fine.

To address the possibility of CMB, we carried out the Harman's single factor test recommended by (Podsakoff et al. 2003). The findings revealed that a single factor accounted for 31.21% of the variance. As mentioned earlier we also adopted a two-stage approach for data collection in our study to minimise CMB. Hence, on the basis of the test result and procedural remedies undertaken, we believe that the issue of CMB is insignificant and is unlikely to confound the results of this study. Further, we checked for multicollinearity to find high correlation among predictor variables in the model. To measure the degree of collinearity, variance inflation factor (VIF) values and tolerance values are estimated. The results reported all the VIF values in the range from 1.05 to 2.06 and tolerance values above 0.48. VIF's lower than 4 and tolerance level above 0.25 suggests no multicollinearity (Fox 1991). Hence, the issue regarding it seemed to be nominal.

Table 3. Reliability and validity of measures.

Construct	AVE	Composite reliability	Cronbach's alpha
Performance expectancy (PE)	0.812	0.945	0.923
Effort expectancy (EE)	0.863	0.962	0.948
Social influence (SI)	0.773	0.931	0.898
Facilitating conditions (FC)	0.731	0.891	0.817
Hedonic motivation (HM)	0.849	0.944	0.911
Price value (PV)	0.881	0.957	0.932
Habit (HA)	0.763	0.928	0.896
Perceived risk (PR)	0.693	0.931	0.915
Continuance intention (CI)	0.738	0.934	0.911
Continuance usage (CU)	0.705	0.877	0.795
Individualism/collectivism (IC)	0.693	0.900	0.871
Uncertainty avoidance (UA)	0.578	0.846	0.762
Long/short-term orientation (LT)	0.638	0.875	0.836
Masculinity/femininity (MF)	0.834	0.953	0.943
Power distance (PD)	0.671	0.890	0.876

5.2. Structural model evaluation

Research hypotheses were tested using PLS method. Bootstrapping procedure with 5000 sub-sample and 302 cases was conducted to test the significance of path coefficients. Table 5 shows the outcomes of the structural model assessment.

The research model explained 64.2% of the variance in continuance intention and 28.0% of the variance in continuance usage of mobile shopping apps. Apart from effort expectancy ($\beta = -0.015$, $p > .1$) and perceived risk ($\beta = 0.005$, $p > .1$), all other variables significantly influenced users' continuance intention towards mobile shopping apps. Further habit ($\beta = 0.385$, $p < .001$) and continuance intention ($\beta = 0.165$, $p < .05$) were significantly related with continuance usage of shopping apps, whereas the influence of perceived risk ($\beta = 0.090$, $p > .1$) and facilitating conditions ($\beta = 0.033$, $p > .1$) on continuance usage were non-significant. Overall, hypothesis H1, H3, H4a, H5, H6, H7a, H7b, and H9 were supported whereas H2, H8a, H8b, and H4b were not supported. We examined the influences of gender, age, and experience of using shopping apps as control

Table 4. Square root of AVE (bold diagonal values) and correlation coefficients of constructs.

Construct	Mean	SD	CI	CU	EE	FC	HA	HM	IC	LT	MF	PD	PE	PR	PV	SI	UA
CI	5.102	1.357	**0.859**														
CU	4.893	1.586	0.432	**0.839**													
EE	6.040	1.208	0.285	0.061	**0.929**												
FC	5.963	1.085	0.522	0.250	0.374	**0.855**											
HA	4.150	1.746	0.623	0.496	0.124	0.294	**0.874**										
HM	5.090	1.387	0.579	0.310	0.293	0.437	0.554	**0.921**									
IC	4.655	1.561	0.211	−0.047	0.509	0.213	0.136	0.145	**0.833**								
LT	5.535	1.234	0.171	−0.074	0.333	0.214	−0.043	0.126	0.511	**0.799**							
MF	2.852	1.781	0.104	−0.002	0.083	−0.001	0.281	0.105	0.207	−0.049	**0.913**						
PD	3.115	1.697	0.110	0.074	−0.018	0.078	0.249	0.036	0.170	0.005	0.508	**0.819**					
PE	5.675	1.214	0.580	0.241	0.382	0.406	0.340	0.367	0.430	0.491	0.130	0.164	**0.901**				
PR	4.753	1.589	0.098	0.103	0.065	0.198	−0.026	0.110	−0.018	0.114	−0.039	−0.042	0.122	**0.832**			
PV	5.526	1.311	0.596	0.291	0.193	0.332	0.534	0.511	0.229	0.115	0.351	0.172	0.480	0.064	**0.939**		
SI	4.370	1.626	0.579	0.256	0.296	0.362	0.467	0.449	0.312	0.140	0.200	0.173	0.525	0.085	0.501	**0.879**	
UA	5.477	1.241	0.251	0.019	0.264	0.371	0.093	0.243	0.410	0.558	0.042	0.041	0.318	0.148	0.195	0.205	**0.760**

Note: SD, standard deviation; CI, continuance intention; CU, continuance usage; EE, effort expectancy; FC, facilitating conditions; HA, habit; HM, hedonic motivation; IC, individualism/collectivism; LT, long-term/short-term orientation; MF, masculinity/femininity; PD, power distance; PE, performance expectancy; PR, perceived risk; PV, price value; SI, social influence; UA, uncertainty avoidance.

variables on continuance intention towards mobile shopping apps. They were found to be statistically insignificant, thereby ruling out their role in influencing the results of the study. To test the moderating influences of espoused cultural values over the model, interaction effects of each moderator were analysed using PLS. We adopted the product indicator approach as we have a reflective measurement model in our study. Further, it is the preferred approach when the focus is on hypothesis testing and accuracy (Henseler and Chin 2010). The adjusted R^2 value for continuance intention was observed to be 71.6% for the full model with all interactions compared to 63.2% for the main effects model. This confirms the significance of espoused cultural values as moderators in the model. Hence, the inclusion of the cultural moderators significantly improved the prediction of user's continuance intention for mobile shopping apps in the UTAUT2 model. The moderating effects of each cultural variable were also tested separately to reduce spurious effects and the results found were invariant. They are available from authors on request.

The interaction between effort expectancy and individualism/collectivism, price value and masculinity/femininity, and performance expectancy and long-term orientation on users' intention to continue with mobile shopping apps were found to be significant, thereby supporting hypothesis H10a, H11a, and H14a. The remaining seven hypotheses on moderation were contradicted.

We further examined the strength of the moderating effects by estimating their effect sizes (Yeh, Wang, and Yieh 2016). An f^2 value of 0.02, 0.15, and 0.35 shows small, medium, and large effect size respectively (Cohen 1988). We used the formula of $f^2 = (R^2_{\text{model with moderator}} - R^2_{\text{model without moderator}})/(1 - R^2_{\text{model with moderator}})$. Among all, individualism/collectivism had the highest effect size (0.12), followed by masculinity/femininity (0.09). Rest of the moderators exhibited a small effect size.

6. Discussion

Driven by the insufficiency of research on post-adoption behaviour with regard to mobile shopping apps, we relied on the UTAUT2 model, and Hofstede's cultural values to build our research framework, to explore and comprehend their roles on shopper's continuance intention and use behaviour. The findings of the study reveal that apart from effort expectancy, all other predictors in the UTAUT2 model were noted to exert significant influence on continuance intention. Undeviating with past studies, performance expectancy was identified as an important driver of continuance intention (Chong 2013; Fang and Fang 2016). When consumers perceive

Table 5. Structural model results.

	Main effects only		Full model	
Directional paths	*β*	*t*-value	*β*	*t*-value
Main effects				
Performance expectancy → Continuance intention	0.222***	3.991	0.234***	3.771
Effort expectancy → Continuance intention	−0.015	0.345	0.232**	2.700
Social influence → Continuance intention	0.133**	2.710	0.148*	2.506
Facilitating conditions → Continuance intention	0.205***	4.019	0.068	1.168
Facilitating conditions → Continuance usage	0.033	0.518	0.033	0.520
Hedonic motivation → Continuance intention	0.121*	2.367	0.081	1.407
Price value → Continuance intention	0.144**	2.584	0.173**	2.787
Habit → Continuance intention	0.285***	5.610	0.254***	4.983
Habit → Continuance usage	0.385***	5.981	0.385***	6.172
Perceived risk → Continuance intention	0.005	0.111	0.022	0.390
Perceived risk → Continuance usage	0.090	1.421	0.090	1.450
Continuance intention → Continuance usage	0.165*	2.104	0.165*	2.123
Control variables				
Gender → Continuance intention	−0.004	0.103		
Age → Continuance intention	−0.043	1.312		
Experience → Continuance intention	0.070	1.958		
Interactions				
Individualism/collectivism			−0.109*	2.015
Masculinity/femininity			−0.076	1.457
Power distance			−0.021	0.470
Uncertainty avoidance			0.043	0.813
Long-term/short-term orientation			0.048	0.706
Effort expectancy × Individualism/collectivism → Continuance intention			0.166*	2.156
Social influence × Individualism/collectivism → Continuance intention			−0.102	1.157
Price value × Masculinity/femininity → Continuance intention			0.199*	2.096
Habit × Masculinity/femininity → Continuance intention			−0.126	1.681
Hedonic motivation × Power distance → Continuance intention			−0.024	0.428
Perceived risk × Power distance → Continuance intention			0.083	1.132
Facilitating conditions × Uncertainty avoidance → Continuance intention			−0.075	1.124
Perceived risk × Uncertainty avoidance → Continuance intention			−0.070	0.889
Performance expectancy × Long-term/short-term orientation → Continuance intention			0.182*	2.259
Price value × Long-term/short-term orientation → Continuance intention			−0.099	1.513
	R^2 on CI	R^2 on CU		
Main effects	0.64	0.28		
Full model	0.74	0.28		

Note: *$p < .05$; **$p < .01$; ***$p < .001$ (two-tailed).

mobile shopping apps as useful that helps them to shop quickly, their intention to continue using those increases. Effort expectancy had no significant effect on continuance intention towards mobile shopping apps. This is in accordance with earlier results of Zhou (2011a) but, is contradictory to other findings (Chong 2013; Fang and Fang 2016). This is most likely because users become more skilful through repeated use of shopping apps and get accustomed to it. The results also indicate the significant positive impact of social influence and facilitating conditions on user's continuous intention. It appears that users of mobile shopping apps continue to look for approval from their peers, friends, and family that influences their post-adoption use of apps. Further, the study confirms that the availability of supportive infrastructure and resources would positively influence user's willingness to continue to use mobile shopping apps in future. In agreement with past research in mobile context, the study findings validate hedonic motivation and price value as significant drivers of behavioural intention to continue with shopping apps (Lai and Shi 2015; Yang et al. 2015). The study findings support the notion that, users derive intrinsic enjoyment, because of visually appealing images and features of apps leading to increased mobile shopping apps continuance intention. Further, user perceives shopping on apps as a good value for money, as the benefits derived out of using them is greater than the costs that motivate the repeated use of apps. In harmony with previous results, habit was reported as the strongest predictor of continuance intention (Jia, Hall, and Sun 2014). We can deduce that frequent use of shopping apps results in habit formation, whereby users tend to continuously use them out of automaticity. Habit was also perceived by users as the major driver of continuance usage of apps followed by continuance intention. Our study could not validate the significant association between facilitating conditions and continuance usage of shopping apps. It is similar to the findings of an earlier study (Lai and Shi 2015). This may happen because experienced users of shopping apps become more skilful with time, are not affected by the facilitating support provided for using mobile shopping apps. The findings on the influence of perceived risk are interesting as its effects on

continuance intention and usage of shopping apps were reported to be insignificant. The results are in contrast to an earlier study that manifested perceived risk as a significant barrier to continued use of m-shopping (Groß 2016). Most studies on adoption of mobile shopping in the past have validated the negative effect of users' risk perception on adoption and use of mobile channels. But, based on our findings of this study, we can infer that compared to the initial adoption and use of mobile shopping apps, users risk perception goes down considerably as they repeatedly use shopping apps. As users become more experienced and confident over a period of time, perceived risk ceases to be a deterrent to continued use and engagement with mobile shopping apps. Moreover, consumers may become more adept in handling risks associated with shopping apps over time, by relying on factors like, positive word-of-mouth, money-back guarantees and company's reputation. Another plausible explanation for this may be because the majority of shopping happens via cash on delivery mode in India.

Regarding the results on the role of espoused cultural values, Individualism/collectivism had a considerable moderating influence on the strength of association between effort expectancy (EE) and continuance intention (CI). The effect was found to be stronger for users with higher individualism than for collectivism, and is consistent with past literature (Hung and Chou 2014). Thus, the finding confirms that respondents with higher individualism look for shopping mediums which are easy to use, convenient and efficient leading to a higher intention to continue using mobile shopping apps. But our assumption that social influence will exert a stronger effect on continuance intention for users high on collectivism could not be validated based on the study findings. It may happen that the impact of individualism is more pronounced in the results as the use of shopping apps is viewed mostly as an individual decision. Next, espoused cultural value of masculinity/femininity substantially moderated the relationship between price value and continuance intention. This advocates that users high on masculinity seek to maximise the value derived out of using mobile shopping apps. Therefore, the utilitarian orientation of individuals high on masculinity results in a stronger intention to continue engagement with shopping apps. Further, the interaction effect of habit and masculinity on user's continuance intention was found insignificant. This indicates that individuals high on masculinity care more about task achievements and benefits derived of their shopping apps, rather than their past experiences, in deciding about their continuance intentions. Next, the results supported the significant moderating influence of espoused long-term orientation in our model. The strength of association between performance expectancy and continuance intention was moderated by espoused long-term orientation in such a manner that the link was more powerful for users with high level of long-term orientation. The results confirm the relevance and importance of long-term orientation cultural values in the context of mobile shopping apps and are in harmony with past studies (Hung and Chou 2014). This suggests that people with high long-term orientation seek better performance, convenient and fast processes in apps aiming to complete tasks quickly. The findings of the study also reveal that long-term orientation had no significant moderating impact over the path between price value and continuance intention. Finally, espoused uncertainty avoidance and power distance were reported to be insignificant moderators of proposed relationships in our model. Hence, our study has produced mixed results with regard to the testing of moderating influences of espoused cultural values. One plausible reason may be, that uncertainty avoidance and power distance affect continuance intention via some alternate variables excluded in our model, which can be explored in future studies.

7. Implications for research and practice

This study's contribution to the literature on the post-acceptance use of technology, specifically in the domain of mobile shopping is manifold. This study demonstrates the validity and applicability of the UTAUT2 model in the domain of mobile shopping apps, in the context of a developing and emerging economy like India. To our knowledge, this study is the first to employ the UTAUT2 model, to examine the continuous use of mobile shopping apps. Moreover, the high variance explained by the base model illustrates the potency and relevance of UTAUT2 in the context of our research. We further contribute to the knowledge base on mobile shopping, by exploring the role of perceived risk, along with other drivers in the model. An interesting finding contrary to previous results is that perceived risk was found to exert no significant adverse influence on continuance intention and usage of mobile shopping applications. The results imply reduced risk perception, and its diminishing impact on the post-acceptance usage of mobile shopping apps among regular users.

Our research is the first to theorise and examine the roles of five espoused cultural values, to understand the continuance decision process of users of mobile shopping applications. The results confirm the significant moderating impact of individualism/collectivism, masculinity/femininity, and long-term/short-term orientation cultural values on the continuance decision

process for mobile shopping apps in the Indian context. It has resulted in supplementing new information about the role of different cultural orientations, manifested through various determinants of mobile shopping apps continuation.

Apart from the theoretical contributions already mentioned, the current work has many practical implications of importance. The findings confirm habit as the foremost predictor of both continuance intention and usage. Hence, online retailers should foster habit among current mobile shoppers, by increasing the frequency of use through notifying attractive offers, discounts, and loyalty programmes to retain them. Marketers need to convey and deliver value to consumers, through their path to purchase by offering a variety of products, personalised offers, discounts and coupons, easy and secure payment options to increase their revenue and profits. Such an approach will yield rich dividends for marketers in India, where many consumers are value oriented. Although, facilitating conditions did not affect continuance usage significantly, it's important in shaping consumers continuance intention to use shopping apps. Thus, providing various online and offline support like tutorials, barcode scanners, live chat will be useful in facilitating repeated use. As consumers have high level of performance expectancy from using apps, app developers and marketers must focus on providing a seamless shopping experience to mobile shoppers, by adding newer and better functionalities and features, thereby resulting in increased effectiveness. Such a strategy will help in nourishing long-term relationships with consumers. Marketers cannot ignore the role of social influence and hedonic aspects in sustaining the repeated use of shopping apps. App developers may look for increased user engagement while shopping on apps, through features like chat, product sharing to connect shoppers, and encourage word of mouth. Marketers should target heavy social media users, as they are likely to get influenced for mobile shopping. Mobile phones are personal in nature and are a constant companion of consumers. Mobile shoppers perceive it to be hedonistic and a leisure-oriented activity. Hence, app developers need to redesign and deliver a pleasurable shopping experience to consumers. Marketing strategies aiming to provide personalised, contextual and engaging shopping encounter will help to achieve emotional bonding with consumers. No considerable adverse impact of perceived risk on consumer's continuance usage of apps in our study is observed. This implies that experienced consumers may disregard various security and privacy threats associated with shopping on mobile apps. But, app developers and marketers should not ignore this crucial aspect of mobile shopping. Issues related to risk may also indirectly affect the regular use of apps, by compromising the performance and value drivers. Marketers should put all efforts to provide a risk-free shopping environment to consumers through data encryption, proper validation checks at each step of the buying process and ask for user's permission for using and sharing personal and sensitive information.

Our findings on espoused cultural moderators bring to light the significant within-country variations in cultural values in India, instead of cross-cultural differences mostly portrayed in previous literature. Retailers should develop marketing campaigns by segmenting and targeting mobile shoppers, based on their cultural orientation to drive maximum usage of shopping apps. App designers could develop apps that are more user-friendly, and with features that assist in easy browsing and buying. Apps with easy to use features would probably appeal more to users high on individualism. Marketing communications should inform individuals high on espoused masculinity, about the perceived value of apps, highlighting time and money-saving options to drive repeated use. Similarly, marketing managers can target individuals high on long-term orientation, with information on the superior performance of mobile shopping apps compared to mobile websites and online shopping. Based on the overall findings on espoused cultural values, we suggest that mobile retailers should design and deliver shopping experience on apps, considering the effect of different cultural variables on user preferences, to enhance customer retention and loyalty.

8. Limitations and future research orientations

To visualise the findings properly, several limitations inherent in the study needs to be acknowledged. Firstly, as the sample and the data collected are confined to one country (India), the results cannot be generalised and may not hold true for different countries. Future studies should replicate our model on samples from different nationalities. The research model can be tested through cross-cultural studies, to better capture the variations in espoused cultural values, and for a deeper understanding of its influence on post-adoption behaviour with regard to mobile shopping applications. Secondly, barring a few, most of the hypotheses regarding moderating effect of cultural values were not supported. Hence, future research works may opt for a larger sample, and explore other alternative constructs as predictors in the model, to obtain perceptible cultural moderation. Thirdly, we analysed the moderating influences of only five cultural dimensions in our study. Thus, we recommend using the sixth

dimension of Indulgence versus restraint (IVR) in future studies which will be interesting in the context of mobile shopping. Moreover, apart from the moderations tested in our study Hofstede's cultural dimensions may also interact with other relationships proposed in our model. Hence, Future researchers may examine several apparent relationships based on prior literature to further refine the model. Fourthly, various predictors in the UTAUT2 model were effective in explaining substantial variance in continuance intention but could not capture significant variation in continuance usage of mobile shopping apps. Hence, future studies may explore and integrate other constructs of relevance to capture a larger share of the variance in continuance usage construct. Finally, this study being mostly cross-sectional in nature, only captures a snapshot of the various drivers and barriers affecting mobile shopping that might become obsolete with time. Therefore, we encourage researchers to adopt a longitudinal research design in the future. It will produce further insights on the change in the direct effects of predictors as well as the moderating effects of cultural values in the model. We also acknowledge the potential bias resulting from self-reported data gathered from the two-stage data collection process employed in the current study. Hence, researchers should consider more objective measures of consumers app usage in the future.

9. Concluding remarks

The current work investigated consumer's continuance intention and use of mobile shopping apps in India by integrating perceived risk as a predictor to the UTAUT2 model. The findings confirm the diminishing impact of consumers risk perceptions on the repeated use of shopping apps. Further, to discern the effects of culture, espoused cultural values were incorporated as moderators in the research model. The results demonstrated the significant impact of individuals espoused cultural values on the strength of the relationships between various predictors and users' intention to continue with shopping apps. A flexible approach in designing and delivering shopping experience on apps, that fits with the users' cultural orientation will further augment their sustained use and growth. Overall, the empirical findings engendered from this research have contributed significantly towards a finer understanding of post-adoption use of mobile shopping applications among both academicians and practitioners.

Disclosure statement

No potential conflict of interest was reported by the authors.

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Appendices

Appendix 1. Measurement items with sources

Construct	Items	Sources
Performance expectancy (PE)	PE1: I find mobile shopping apps useful in my daily life. PE2: Using mobile shopping apps helps me accomplish things more quickly. PE3: Using mobile shopping apps increases my productivity. PE4: Using mobile shopping apps increases my chances of achieving things that are important to me.	Venkatesh et al. (2003, 2012)
Effort expectancy (EE)	EE1: Learning how to use mobile shopping apps is easy for me. EE2: My interaction with mobile shopping apps is clear and understandable. EE3: I find mobile shopping apps easy to use. EE4: It is easy for me to become skilful at using mobile shopping apps.	Venkatesh et al. (2003, 2012)
Social influence (SI)	SI1: People who are important to me think that I should use mobile shopping apps. SI2: People who influence my behaviour think that I should use mobile shopping apps. SI3: People whose opinions that I value prefer that I use mobile shopping apps. SI4: I use mobile shopping apps because many people are using them.	Venkatesh, Thong, and Xu (2012); Lai and Lai (2014)
Facilitating conditions (FC)	FC1: I have the resources necessary to use mobile shopping apps. FC2: I have the knowledge necessary to use mobile shopping apps. FC3: Mobile shopping apps are compatible with other technologies I use.	Venkatesh, Thong, and Xu (2012)
Hedonic motivation (HM)	HM1: Using mobile shopping apps is fun. HM2: Using mobile shopping apps is enjoyable. HM3: Using mobile shopping apps is very entertaining.	Venkatesh, Thong, and Xu (2012)
Price value (PV)	PV1: Mobile shopping apps are reasonably priced. PV2: Mobile shopping apps are a good value for the money. PV3: At the current price mobile shopping apps provide a good value.	Venkatesh, Thong, and Xu (2012)
Habit (HA)	HA1: The use of mobile shopping apps has become a habit for me. HA2: I am addicted to using mobile shopping apps. HA3: I must use mobile shopping apps. HA4: Using mobile shopping apps has become natural to me.	Venkatesh, Thong, and Xu (2012)
Perceived risk (PR)	PR1: I am concerned over the security of personal information exchange on mobile shopping apps. PR2: I am concerned that my personal information may be shared with business without my consent as a result of purchasing on mobile shopping apps. PR3: I am concerned that the information I disclosed to this mobile vendor may be misused. PR4: I am worried about the security of financial transactions carried out on mobile shopping apps. PR5: Using mobile shopping apps would lead to potential fraud of my bank account. PR6: Using mobile shopping apps would subject my bank account to financial risks.	Gao, Waechter, and Bai (2015); De Kerviler, Demoulin, and Zidda (2016)
Continuance intention (CI)	CI1: I intend to continue using mobile shopping apps rather than discontinue its use. CI2: My intention is to continue using mobile shopping apps than use any alternative means. CI3: I will recommend use of mobile shopping apps to others. CI4: I will always try to use mobile shopping apps in my daily life. CI5: I plan to continue to use mobile shopping apps frequently.	Bhattacherjee (2001); Groß (2015b); Venkatesh, Thong, and Xu (2012)
Continuance usage (CU)*	CU1: The number of mobile shopping apps that you currently use. CU2: The number of times you currently use mobile shopping apps in a month. CU3: The number of hours you currently use mobile shopping apps in a month.	Bhattacherjee, Perols, and Sanford (2008); Limayem, Hirt, and Cheung (2007)
Individualism/ collectivism (IC)	IC1: I think that my personal achievement is more important than group success. IC2: I think that my personal reward is more important than group welfare. IC3: I am willing to work overtime to pursue personal accomplishments. IC4: I like to make decisions myself rather than through group discussions.	Hung and Chou (2014)
Uncertainty avoidance (UA)	UA1: When starting a new job, I fear doing it. UA2: I fear uncertainty about the future. UA3: I fear ambiguous situations and unfamiliar adventures. UA4: It is risky to do something that has never been done before.	Yoon (2009)
Long-term/short-term orientation (LT)	LT1: Respect for tradition is important for me. LT2: I work hard for success in the future. LT3: Traditional values are important for me. LT4: I plan for the long term.	Baptista and Oliveira (2015)
Masculinity/femininity (MF)	MF1: The fulfilment of tasks is more important than caring for others. MF2: A job with high earnings is better than a job with quality of life. MF3: A man should be strong and a woman should be tender. MF4: It is important to have an opportunity for advancement to higher level jobs.	Yoon (2009); Lu et al. (2017b)
Power distance (PD)	PD1: Managers should make most decisions without consulting subordinates. PD2: Manager should not ask subordinates for advice, because they might appear less powerful. PD3: Decision-making power should stay with top management in the organisation and not be delegated to lower level employees. PD4: Employees should not question their manager's decision.	Srite and Karahanna (2006)

*All the three items for measuring the continuance usage construct were used in the second stage of the survey.

Appendix 2. Cross loadings

	CI	CU	EE	FC	HA	HM	IC	LT	MF	PD	PE	PR	PV	SI	UA
CI1	**0.842**	0.278	0.263	0.462	0.468	0.519	0.153	0.230	0.047	0.030	0.541	0.090	0.473	0.444	0.287
CI2	**0.833**	0.301	0.224	0.410	0.475	0.442	0.218	0.154	0.090	0.072	0.504	0.172	0.485	0.448	0.226
CI3	**0.845**	0.401	0.265	0.440	0.492	0.465	0.185	0.199	0.017	0.072	0.566	0.045	0.544	0.517	0.233
CI4	**0.889**	0.398	0.247	0.456	0.586	0.515	0.210	0.103	0.162	0.191	0.481	0.052	0.532	0.527	0.178
CI5	**0.885**	0.455	0.225	0.475	0.640	0.540	0.145	0.063	0.124	0.099	0.413	0.076	0.520	0.538	0.167
CU1	0.242	**0.772**	0.049	0.119	0.275	0.201	−0.084	−0.042	−0.062	−0.035	0.098	0.175	0.199	0.122	0.003
CU2	0.386	**0.860**	0.069	0.249	0.430	0.328	−0.001	−0.053	0.010	0.051	0.225	0.040	0.278	0.259	0.032
CU3	0.422	**0.882**	0.037	0.236	0.499	0.242	−0.048	−0.083	0.024	0.130	0.250	0.077	0.248	0.237	0.010
EE1	0.200	0.022	**0.900**	0.326	0.013	0.218	0.496	0.346	0.035	−0.043	0.308	0.098	0.109	0.233	0.249
EE2	0.251	0.055	**0.938**	0.304	0.135	0.240	0.469	0.292	0.076	−0.022	0.314	0.064	0.161	0.248	0.231
EE3	0.292	0.062	**0.938**	0.397	0.164	0.285	0.457	0.271	0.118	0.050	0.390	0.031	0.213	0.270	0.223
EE4	0.294	0.075	**0.939**	0.352	0.119	0.327	0.479	0.341	0.067	−0.063	0.390	0.062	0.210	0.333	0.278
FC1	0.448	0.139	0.373	**0.834**	0.182	0.402	0.229	0.211	−0.128	−0.039	0.331	0.197	0.212	0.300	0.367
FC2	0.430	0.170	0.333	**0.887**	0.227	0.394	0.136	0.187	0.001	0.051	0.368	0.139	0.292	0.252	0.289
FC3	0.458	0.314	0.262	**0.844**	0.328	0.332	0.180	0.155	0.105	0.169	0.342	0.170	0.337	0.365	0.299
HA1	0.585	0.405	0.146	0.282	**0.896**	0.512	0.097	−0.040	0.209	0.180	0.311	−0.091	0.513	0.436	0.033
HA2	0.488	0.452	0.082	0.197	**0.900**	0.481	0.101	−0.067	0.279	0.251	0.237	0.016	0.451	0.359	0.033
HA3	0.526	0.411	0.143	0.213	**0.858**	0.492	0.214	0.022	0.258	0.217	0.310	−0.021	0.421	0.451	0.086
HA4	0.572	0.462	0.064	0.323	**0.840**	0.451	0.070	−0.061	0.238	0.223	0.325	0.009	0.476	0.383	0.168
HM1	0.526	0.277	0.219	0.402	0.540	**0.917**	0.078	0.095	0.088	0.063	0.266	0.102	0.463	0.393	0.182
HM2	0.540	0.308	0.281	0.398	0.505	**0.921**	0.110	0.109	0.056	0.014	0.364	0.116	0.471	0.435	0.262
HM3	0.533	0.272	0.311	0.408	0.488	**0.926**	0.212	0.144	0.147	0.022	0.383	0.086	0.479	0.414	0.226
IC1	0.255	0.063	0.362	0.142	0.209	0.160	**0.868**	0.440	0.258	0.234	0.421	−0.101	0.286	0.397	0.397
IC2	0.152	−0.090	0.512	0.243	0.027	0.151	**0.846**	0.445	0.063	0.069	0.349	0.053	0.154	0.146	0.286
IC3	0.103	−0.143	0.459	0.186	0.057	0.033	**0.823**	0.441	0.144	0.061	0.303	0.050	0.096	0.144	0.374
IC4	0.081	−0.138	0.449	0.173	0.057	0.067	**0.791**	0.371	0.160	0.103	0.283	0.045	0.096	0.215	0.262
LT1	0.130	−0.122	0.321	0.132	−0.105	0.140	0.508	**0.798**	0.043	0.012	0.492	0.133	0.122	0.131	0.401
LT2	0.189	0.008	0.278	0.286	0.028	0.117	0.373	**0.886**	−0.166	−0.023	0.365	0.132	0.076	0.116	0.536
LT3	0.022	−0.168	0.256	0.110	−0.194	0.058	0.534	**0.770**	0.112	0.046	0.449	0.077	0.136	0.126	0.398
LT4	0.063	−0.104	0.182	−0.035	−0.024	0.008	0.360	**0.733**	0.109	0.057	0.341	−0.092	0.082	0.081	0.386
MF1	0.034	−0.038	0.084	−0.024	0.224	0.085	0.131	−0.082	**0.898**	0.415	0.076	0.003	0.287	0.170	0.006
MF2	0.126	0.011	0.058	0.003	0.294	0.136	0.206	−0.056	**0.960**	0.504	0.134	−0.055	0.368	0.215	0.032
MF3	0.098	0.000	0.113	0.006	0.252	0.064	0.212	−0.009	**0.937**	0.479	0.137	−0.041	0.310	0.173	0.074
MF4	0.020	−0.030	0.025	−0.019	0.189	0.054	0.130	−0.103	**0.855**	0.392	0.048	0.034	0.248	0.108	−0.022
PD1	0.040	−0.011	−0.063	0.018	0.148	0.085	0.136	0.018	0.391	**0.720**	0.102	0.051	0.181	0.083	0.035
PD2	0.013	0.046	−0.088	−0.019	0.234	0.015	0.069	−0.105	0.476	**0.765**	0.041	0.007	0.103	0.080	−0.028
PD3	0.137	0.100	0.018	0.118	0.218	0.032	0.150	0.009	0.428	**0.943**	0.170	−0.040	0.150	0.188	0.050
PD4	0.054	0.033	−0.049	0.000	0.262	−0.006	0.171	0.011	0.512	**0.830**	0.132	−0.102	0.139	0.123	0.014
PE1	0.488	0.219	0.341	0.386	0.243	0.293	0.342	0.442	0.086	0.149	**0.889**	0.133	0.339	0.470	0.321
PE2	0.502	0.171	0.394	0.393	0.263	0.305	0.369	0.465	0.059	0.098	**0.894**	0.105	0.424	0.462	0.315
PE3	0.557	0.206	0.304	0.346	0.359	0.389	0.381	0.432	0.171	0.182	**0.915**	0.094	0.479	0.493	0.281
PE4	0.539	0.269	0.343	0.342	0.350	0.328	0.452	0.435	0.143	0.159	**0.906**	0.111	0.479	0.467	0.234
PR1	0.103	0.127	0.086	0.258	0.013	0.147	0.021	0.158	0.037	0.017	0.168	**0.830**	0.061	0.172	0.195
PR2	0.077	0.085	0.024	0.203	−0.022	0.084	−0.087	0.043	−0.076	−0.075	0.074	**0.858**	0.044	0.089	0.074
PR3	0.074	0.083	0.041	0.187	−0.059	0.089	−0.020	0.157	−0.154	−0.122	0.112	**0.891**	−0.008	0.018	0.134
PR4	0.071	0.079	0.121	0.126	−0.035	0.084	0.020	0.044	0.006	−0.072	0.071	**0.836**	0.077	−0.008	0.075
PR5	0.030	0.015	−0.003	0.011	−0.046	0.054	0.009	0.070	−0.070	0.020	0.070	**0.795**	0.073	−0.009	0.095
PR6	0.092	0.057	0.004	0.045	−0.014	0.037	−0.030	0.048	0.009	0.041	0.061	**0.778**	0.088	0.058	0.116
PV1	0.543	0.241	0.150	0.302	0.452	0.444	0.180	0.128	0.306	0.114	0.419	0.085	**0.912**	0.444	0.262
PV2	0.576	0.290	0.185	0.333	0.528	0.515	0.233	0.081	0.355	0.191	0.465	0.031	**0.952**	0.504	0.152
PV3	0.558	0.288	0.207	0.298	0.522	0.479	0.229	0.115	0.326	0.178	0.467	0.065	**0.951**	0.460	0.140
SI1	0.553	0.270	0.304	0.373	0.406	0.447	0.228	0.107	0.165	0.089	0.480	0.112	0.472	**0.924**	0.181
SI2	0.562	0.228	0.301	0.349	0.454	0.426	0.340	0.157	0.171	0.135	0.521	0.021	0.479	**0.949**	0.225
SI3	0.520	0.190	0.305	0.305	0.362	0.371	0.325	0.176	0.173	0.139	0.538	0.111	0.446	**0.921**	0.162
SI4	0.377	0.219	0.086	0.227	0.440	0.327	0.190	0.030	0.210	0.296	0.268	0.056	0.351	**0.701**	0.149
UA1	0.158	−0.009	0.272	0.249	−0.009	0.135	0.376	0.578	−0.100	−0.175	0.259	0.094	0.038	0.148	**0.765**
UA2	0.169	−0.019	0.248	0.293	−0.045	0.178	0.300	0.564	−0.172	−0.199	0.280	0.204	0.060	0.158	**0.766**
UA3	0.241	0.080	0.187	0.321	0.185	0.286	0.310	0.286	0.181	0.179	0.239	0.130	0.284	0.122	**0.776**
UA4	0.174	−0.022	0.110	0.250	0.100	0.097	0.267	0.344	0.145	0.235	0.194	0.017	0.148	0.209	**0.733**

Note: CI, continuance intention; CU, continuance usage; EE, effort expectancy; FC, facilitating conditions; HA, habit; HM, hedonic motivation; IC, individualism/collectivism; LT, long-term/short-term orientation; MF, masculinity/femininity; PD, power distance; PE, performance expectancy; PR, perceived risk; PV, price value; SI, social influence; UA, uncertainty avoidance.

Appendix 3. Overview of studies on m-commerce/m-shopping adoption and continuance use employing UTAUT2

Study	Data source	Context	Method/sample	Antecedents	Outcome variable(s)
Chopdar et al. (2018)	221 Indian and 145 American shopping app users	Mobile shopping applications	Online survey	Performance expectancy, effort expectancy, social influence, facilitating conditions, hedonic motivation, price value, habit, privacy risk and security risk	Behavioural intention and use behaviour
Madan and Yadav (2018)	304 students and working professional using m-devices in India	Mobile shopping	Online survey	Hedonic motivation, perceived risk, cost, facilitating conditions, perceived innovativeness, perceived critical mass, perceived regulatory support and perceived benefits	Behavioural intention
Gupta, Dogra, and George (2018)	343 travellers using mobile apps in India	Mobile travel apps	Online survey	Performance expectancy, Effort expectancy, Social influence, Facilitating conditions, Hedonic motivation, Price saving orientation, Habit, perceived risk and perceived trust	Behavioural intention
Tak and Panwar (2017)	350 mobile shoppers in India	Mobile shopping application	Online survey	Performance expectancy, Effort expectancy, Social influence, Facilitating conditions, Hedonic motivation, Price value, Habit and deal proneness	Behavioural intention and use
Gupta and Dogra (2017)	284 travellers using mapping apps in India	Mapping apps	Online survey	Performance expectancy, Effort expectancy, Social influence, Facilitating conditions, Hedonic motivation, Price value, Habit	Behavioural intention, Use behavior
Alalwan, Dwivedi, and Rana (2017)	343 bank customers in Jordan	Mobile banking	Self-administered questionnaires	Performance expectancy, Effort expectancy, Social influence, Facilitating conditions, Hedonic motivation, Price value and trust	Behavioural intention and adoption
Morosan and DeFranco (2016)	749 hotel consumers in the U.S.A.	Near field communications mobile payments		Performance expectancy, Effort expectancy, Social influence, Facilitating conditions, Hedonic motivation, Habit, general privacy and perceived security	System-related privacy and intention
Oliveira et al. (2016)	301 mobile users in Portugal	Mobile payment	Online survey	Performance expectancy, Effort expectancy, Social influence, Facilitating conditions, Hedonic motivation, Price value, compatibility, innovativeness and perceived technology security	Behavioural intention to adopt and behavioural intention to recommend
Hew et al. (2015)	288 students in Malaysia	Mobile apps	Self-administered questionnaire	Performance expectancy, Effort expectancy, Social influence, Facilitating conditions, Hedonic motivation, Price value, Habit	Behavioural intention
Lai and Shi (2015)	251 mobile messaging and social network users in China	Mobile instant messaging and social networking app	Online survey	Performance expectancy, Effort expectancy, Social influence, Facilitating conditions, Hedonic motivation, Price value, Habit and privacy concerns	Continuance intention
Tang et al. (2014)	418 smartphone users in Malaysia	Mobile wallet	Online and self-administration survey	Performance expectancy, Effort expectancy, Social influence, Facilitating conditions, Hedonic motivation, Price value, Habit	Behaviour intention